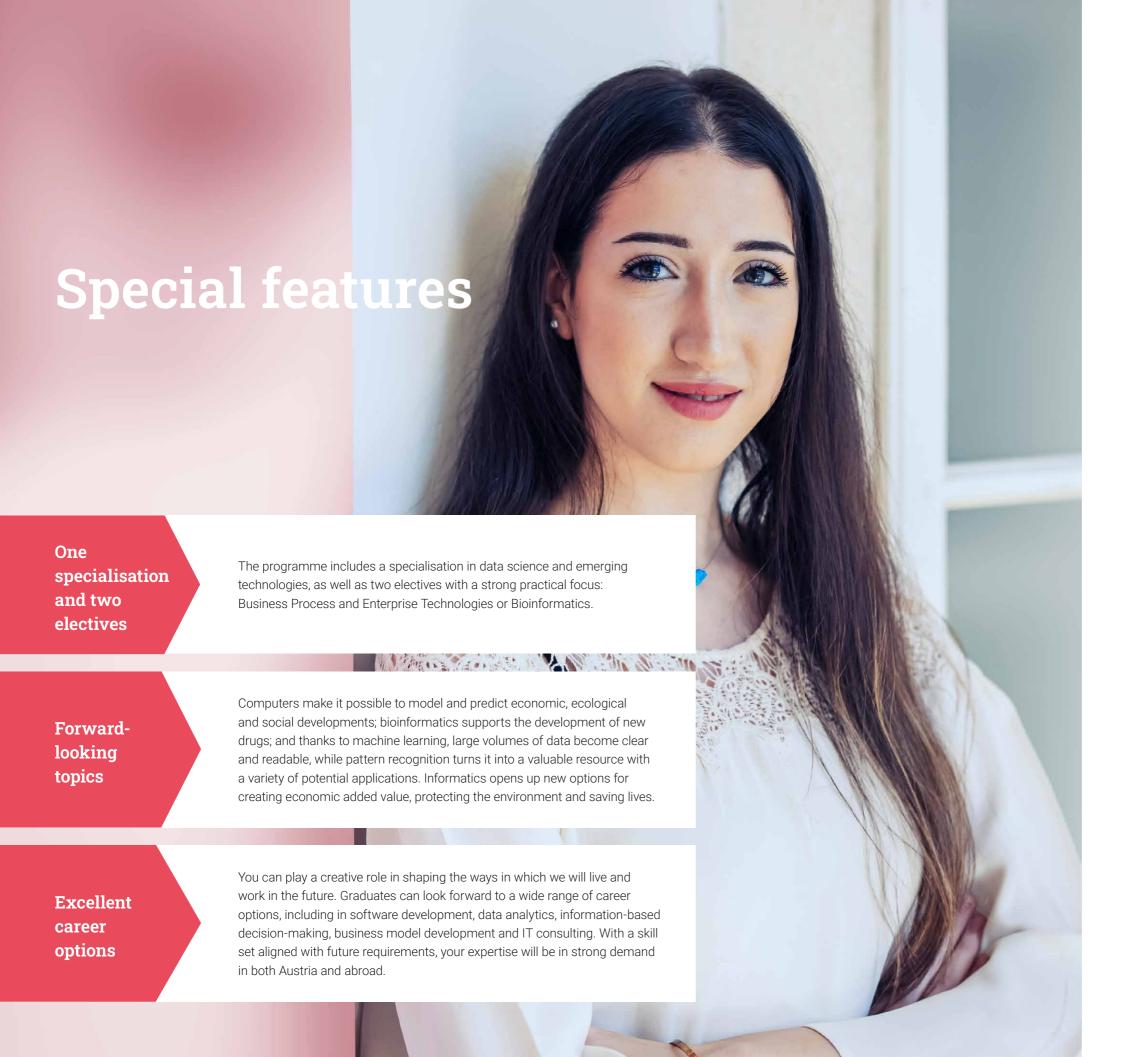Science
and Technology

**imc**

**University of
Applied Sciences**

BACHELOR

# Informatics

One thing's for sure: informatics has had a bigger impact on developments in how we live and work than any other field over the past few decades, and will grow in significance over the years to come. "INFinities" is the nickname for IMC Krems' informatics students with endless opportunities.

*www.imc.ac.at*

# Special features

**One specialisation and two electives**

The programme includes a specialisation in data science and emerging technologies, as well as two electives with a strong practical focus: Business Process and Enterprise Technologies or Bioinformatics.

**Forward-looking topics**

Computers make it possible to model and predict economic, ecological and social developments; bioinformatics supports the development of new drugs; and thanks to machine learning, large volumes of data become clear and readable, while pattern recognition turns it into a valuable resource with a variety of potential applications. Informatics opens up new options for creating economic added value, protecting the environment and saving lives.

**Excellent career options**

You can play a creative role in shaping the ways in which we will live and work in the future. Graduates can look forward to a wide range of career options, including in software development, data analytics, information-based decision-making, business model development and IT consulting. With a skill set aligned with future requirements, your expertise will be in strong demand in both Austria and abroad.

## At a glance

### Full-time
Courses take place from Monday to Friday between 8.00 a.m. and around 8.00 p.m. (in exceptional cases on Saturdays).

### English
The language of instruction is English. This prepares you for a career in a multicultural environment.

### Six semesters
The degree programme lasts three years, with a total workload of 180 ECTS. Graduates receive the academic degree of Bachelor of Science in Engineering (BSc).

### 22-week internship
You can quickly put into practice the expertise you have picked up during your courses. The internship is an obligatory part of the programme.

### Study fee
EU/EEA citizens pay a study fee of EUR 363.36 per semester, plus the student union fee.

# Curriculum

FULL-TIME

| Semester I | CH | ECTS |
|---|---|---|
| MATHEMATICS, STATISTICS AND THEORETICAL COMPUTER SCIENCE | | |
| MATHEMATICS I | | |
| Mathematics I – Theory | 2 | 3 |
| Mathematics I – Exercise | 2 | 3 |
| STATISTICS AND PROBABILITY IN COMPUTER SCIENCE | | |
| Statistics and Probability in Computer Science – Theory | 2 | 3 |
| Statistics and Probability in Computer Science – Exercise | 2 | 3 |
| SOFTWARE ENGINEERING AND DATA MODELLING | | |
| Web Technologies | 4 | 6 |
| Programming I | 4 | 6 |
| COMPUTER SCIENCE AND SOCIETY | | |
| Introduction: Applied Informatics | 1 | 1 |
| General Business Administration | 2 | 3 |
| SOCIAL SKILLS | | |
| Intercultural Competences | 1 | 2 |

| Semester II | CH | ECTS |
|---|---|---|
| MATHEMATICS, STATISTICS AND THEORETICAL COMPUTER SCIENCE | | |
| Mathematics II | 2 | 3 |
| Theoretical Computer Science and Logic | 2 | 3 |
| Algorithms and Data Structures I | 2 | 3 |
| COMPUTER SYSTEMS | | |
| DATABASE SYSTEMS | | |
| Database Systems – Theory | 2 | 2 |
| Database Systems – Exercise | 2 | 3 |
| Technical Foundations of Computer Science | 2 | 2 |
| Networking Technologies and Management Systems I | 2 | 2 |
| SOFTWARE ENGINEERING AND DATA MODELLING | | |
| Programming II | 4 | 6 |
| Design Methodology in Human Computer Interaction | 2 | 3 |
| COMPUTER SCIENCE AND SOCIETY | | |
| Reflections on Computer Science, Society and Ethics | 1 | 1 |
| SOCIAL SKILLS | | |
| Creative Thinking | 2 | 2 |

| Semester III | CH | ECTS |
|---|---|---|
| MATHEMATICS, STATISTICS AND THEORETICAL COMPUTER SCIENCE | | |
| Advanced Statistical Methods for Data Science | 2 | 4 |
| Algorithms and Data Structures II | 2 | 3 |
| COMPUTER SYSTEMS | | |
| Networking Technologies and Management Systems II | 2 | 3 |
| Operating Systems | 2 | 3 |
| SOFTWARE ENGINEERING AND DATA MODELLING | | |
| Software Engineering and Project Management | 4 | 6 |
| COMPUTER SCIENCE AND SOCIETY | | |
| REFLECTIONS ON CRITICAL ALGORITHM STUDIES | | |
| Reflections on Computer Science, Society and Ethics | 1 | 1 |
| Critical Algorithm Studies | 2 | 2 |
| Process Management | 2 | 3 |
| Computer Science and Law | 2 | 3 |
| RESEARCH AND SCIENTIFIC WORKING | | |
| Scientific Skills and Writing | 2 | 2 |

| Semester IV | CH | ECTS |
|---|---|---|
| COMPUTER SYSTEMS | | |
| DISTRIBUTED SYSTEMS | | |
| Distributed Systems – Theory | 2 | 3 |
| Distributed Systems – Exercise | 2 | 3 |
| IT SECURITY | | |
| Risk Management | 2 | 3 |
| Cybersecurity and Data Protection | 3 | 4 |
| DATA SCIENCE AND EMERGING TECHNOLOGIES | | |
| FROM DATA CAPTURING TO ANALYSIS AND INTERPRETATION | | |
| Data Mining, Acquisition and Preparation | 2 | 3 |
| Machine Learning, Artificial Intelligence and Big Data Analytics | 3 | 4 |
| Data Visualisation, Presentation and Real-time Integration of Digital Products | 2 | 3 |
| Data Science Capstone Project | 3 | 4 |
| COMPUTER SCIENCE AND SOCIETY | | |
| Reflections on Computer Science, Society and Ethics | 1 | 1 |
| RESEARCH AND SCIENTIFIC WORKING | | |
| Bachelor Exposé Preparation | 1 | 2 |

| Semester V | CH | ECTS |
|---|---|---|
| PRACTICAL TRAINING SEMESTER | | |
| Practical Training Semester (22 weeks à 30 hours) | 0 | 28 |
| Practical Training Coaching Seminar | 1 | 2 |

| Semester VI | CH | ECTS |
|---|---|---|
| DATA SCIENCE AND EMERGING TECHNOLOGIES | | |
| Current Trends and Emerging Technologies | 2 | 2 |
| COMPUTER SCIENCE AND SOCIETY | | |
| Reflections on Computer Science, Society and Ethics | 1 | 1 |
| RESEARCH AND SCIENTIFIC WORKING | | |
| Bachelor Seminar and Bachelor Paper | 1 | 8 |
| Bachelor Exam | 0 | 2 |
| SOCIAL SKILLS | | |
| Communication and Presentation Skills | 1 | 1 |
| ELECTIVE 1: BUSINESS PROCESS AND ENTERPRISE TECHNOLOGIES | | |
| ERP-CONSULTING | | |
| Customising | 3 | 6 |
| Data Transformation and Data Warehousing | 3 | 3 |
| Integrated Value Flows | 2 | 3 |
| Business Application Integration | 3 | 4 |
| ELECTIVE 2: BIO INFORMATICS | | |
| IMAGE PROCESSING AND VISUAL COMPUTING IN BIOLOGY AND MEDICINE | | |
| Image Processing and Visual Computing in Biology and Medicine – Theory | 2 | 2 |
| Image Processing and Visual Computing in Biology and Medicine – Exercise | 1 | 2 |
| Biological Foundations of Bio Informatics | 2 | 3 |
| Algorithms and Tools in Bio Informatics | 2 | 3 |
| Big Data for Bioanalytics and Medicine | 4 | 6 |

CH: Contact Hours

Students choose one elective out of two in semester six.

Subject to possible alterations.

SOPHIE GEIGER COMES FROM TULLN WHERE SHE GRADUATED FROM THE COMMERCIAL ACADEMY (HANDELSAKADEMIE). AFTER ONE YEAR OF ORIENTATION, SHE ENROLLED IN THE ENGLISH-LANGUAGE BACHELOR DEGREE PROGRAMME IN INFORMATICS.

### Excellent career opportunities

I chose the bachelor degree in Informatics because it ensures great career opportunities and I can work in the industry anywhere in the world. In addition, I have always wanted to be better than any hacker.

### Data Science and English

When I applied, I found the focus on data science attractive. This is a very relevant topic in computer science today. I benefit most from the fact that the cultural diversity in the classroom allows us to continue speaking in English outside the classroom, so that English skills are automatically improved while studying.

### Previous experience not necessary

For me it was surprising that it is not so important to have previous experience in computer science. At the beginning, you will be taught all the basics that are necessary for further studies. I would like to graduate with a bachelor degree and then gain work experience abroad. I am particularly interested in Ireland.

## Tip

A degree in informatics lays the foundations for a career, not just a job. You'll have plenty of options at the end of your degree.

## Career options

**After your studies, you have the choice of either enrolling for a related master degree or starting your career. Potential entry level positions include:** software development: front end, back end, web (for external or in-house clients); data science: data collection, cleansing, analysis and interpretation (for external or in-house clients); IT consulting: advising clients and adapting software solutions; business intelligence engineering: developing and operating ERP, DWH and BI systems (for and in companies)

# IMC. It's all in me.

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Accreditations

Memberships

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